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was an evident flow of wood from the interior over and down this layer of inclosed bark.

He remarked that this section of wood was taken from a stem which had been led to support itself in an upright position. When the *Wistaria* is permitted to trail along the ground numerous rootlets are formed along its length. He thought from the appearance of the wood, in the specimen presented, that rootlets had partially formed in these erect stems, pushing through the liber, and then instead of penetrating entirely through the bark, and forming perfect rootlets, they remained within the cellular matter, and descending joined with the regular woody layer in forming an annular course of wood. This explanation was the more plausible, he thought, from the fact that woody stems formed on the ground. Where the rootlets went quite through into the earth, the stems were nearly regularly cylindrical; but these upright stems on which rootlets were never seen had an irregular fluted appearance; of course, this explanation does not accord with the formation of wood in ligneous structures as generally understood; but he could not understand how the appearance presented could have occurred in any other way, than as he had supposed.

Attention was called to a twin apple, on the table, with two stems and stem cavities, and two calyx basins a little below which, however, an union had taken place. Mr. Meehan said these phenomena were rather common with various fruits and the mode of production well understood. It was simply the inarching of two fruits at a very early stage of their existence, through two embryonic blossoms having perhaps been produced in juxtaposition from one bud.

Dr. JOSEPH CARSON said that he thought the variety exhibited, the winesap, had a tendency to pair young buds and thus bring forth these united twin fruit. He had once known a tree of them which produced a large proportion of the fruit of this character. He had seen perhaps a peck of them which had been gathered at one time from the tree.

OCTOBER 15.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-one members present.

Remarks on Fossil Mammals from Wyoming.—Prof. LEIDY directed attention to the collection of fossils, from the vicinity of Fort Bridger, Wyoming, presented this evening by Dr. J. Van A. Carter, Dr. Joseph K. Corson, U. S. A., and himself. Among them are the more characteristic remains noticed in a letter sent by him to the Academy last July, published August 1st, and subsequently in the Proceedings, page 167. Some of the fossils were

referred to a huge pachyderm with the name of *UINTATHERIUM ROBUSTUM*. Of this animal Drs. Carter and Corson found together a number of parts of the same skeleton, consisting of the back portion of a cranium retaining parts of both temporal fossæ, the occiput and the occipital condyles; parts of the upper and lower jaws containing the back molars; a mutilated humerus; a proximal and a distal extremity of a femur; and a calcaneum and an astragalus. These were found 10 miles from Dry Creek Cañon, about 50 miles from Fort Bridger. In Dry Creek Cañon Prof. Leidy found a mutilated atlas and the body of an axis, evidently of the same animal.

Ten miles distant from the locality in which the former remains of *Uintatherium* were found, Dr. Corson discovered the large canines, originally referred to *Uintamastix atrox*. While it was suspected that they might pertain to *Uintatherium*, no evidence was found to sustain the opinion, and from their resemblance to the canines of the great Brazilian sabre-toothed tiger *Machairodus*, they were referred to a carnivore with the name just stated.

Prof. Marsh has since published a notice, dated Sept. 27th and appearing in the October number of the American Journal of Science, of a skull from Wyoming, under the name of *Dinoceras mirabilis*, which appears to be the same as *Uintatherium robustum*. The skull he observes is entire and is $28\frac{1}{2}$ inches long. It is provided with three pairs of horn cores and huge decurved canine tusks. The top of the skull is deeply concave and has around its lateral and posterior margins an enormous crest. This description will apply to our cranium, as does also that of the molar teeth to those in our upper jaw specimens. The description of the canines equally well applies to those referred to *Uintamastix atrox*, so that it would appear that this and *Dinoceras mirabilis* are the same as *Uintatherium robustum*.

Some of the fossils belong to *PALÆOSYOPS MAJOR*, a large tapir-like animal. Of this we have a number of fine specimens, including a cranium, the face and parts of the jaws of a second individual, and several rami of lower jaws with well preserved teeth of others. These were discovered by Drs. Carter and Corson in Dry Creek Cañon. The genus was originally noticed in the Proceedings of this Academy for 1870. It was founded on a few teeth and was supposed to be an even-toed pachyderm. From more complete material its true position as an odd-toed pachyderm was recognized, and its characters more fully given in Prof. Hayden's Preliminary Report of the U. S. Geological Survey of Montana, etc., published in the beginning of this year. The last August, Prof. Marsh published a notice, in the American Journal of Science, of some fossils from Wyoming which he ascribes to two genera under the name of *Palæosyops* and *Limnohyus*. From the notice it would appear he has overlooked the description of *Palæosyops* in the Report just named, for he intimates the reference of the genus to the perissodactyls as if previously unknown and sug-

gests the reference to it of specimens in which the "last upper molar has two inner cones," though it is distinctly stated in the above Report that "the last upper molar of *Palæosyops* has but a single lobe to the inner part of the crown." Upon the latter character Prof. Marsh proposed the genus *Limnohyus*, which, under the circumstances is untenable, but might with propriety be applied to the animal with molars like those of *Palæosyops*, except that the last upper one has two inner cones to the crown. In this view, a specimen in the collection, of a last upper molar tooth, which I had ascribed to *Palæosyops humilis* on account of its comparatively small size, would belong to *Limnohyus*.

Remarks on Chipped Stones from Wyoming.—Prof. LEIDY further called attention to a multitude of chipped stones, which he had collected about 10 miles northeast of Fort Bridger. He observed that he had noticed in many places in the vicinity of Fort Bridger, covering the plains and ravines at the base of the foot hills of the Uintas, great quantities of sharply fractured stone fragments. They are frequently mingled with the rounded pebbles of the drift from the Uintas, but in other places are thickly strewn over the ground without being mingled with the drift. Many of the fragments are broken in such a manner that it is difficult to be convinced that they are not of artificial origin. Mingled with the more evident accidental flakes there occur great numbers of stone implements of the rudest construction, such as those exhibited on the table. A few are also found of the finest finish. Between these and the stone spawls of accidental origin there occurs such a gradation of form as to render it doubtful at times when nature ceased her labor and where primitive man commenced with his.

The materials of the splintered stones consist of jaspers, quartzites, some of the softer rocks of the tertiary strata, and less frequently of black flint, identical in appearance with that of the English chalk. The latter material I nowhere found in position, but have been informed by Prof. Hayden that it occurs in the cliffs of Henry's Fork of Green River.

The accidental flakes probably had their origin through the agency of frosts, and from the concussion of stones descending from the declivities. In experimenting on some weather-worn slabs of jasper from the buttes of Dry Creek, I found that moderate blows of a hammer would send off sharp spawls, reminding one of the ancient flint knives.

The splintered stones appear greatly to differ in age; while some appear perfectly fresh as if recently broken from the parent block, others are dull and worn, and many so deeply altered by exposure as to look very ancient. In some of the old looking specimens, the jasper originally black or brown has become whitened to the depth of half an inch or more.

Prof. LEIDY further remarked as follows:—I may take this op-

portunity of referring to one of the simplest of stone implements yet in use among the Indians of Wyoming. During my stay at Fort Bridger the Shoshones made a visit to the post, and encamped on Black's Fork in its vicinity for a week. They comprised about 800 persons with about 80 lodges and 1000 horses. Being the first time I had had a chance of seeing a tribe of Indians, I felt much interest in observing them. While wandering through their camp I noticed the women engaged in dressing buffalo skins with a stone implement, the only one of the material I discovered in use among them. It was a thin segment from a quartzite boulder, made by a single smart blow with another stone and with no other preparation. Several specimens I exhibit to the Academy, obtained by my friend Dr. Carter, who ascertained that the instrument was called a Tesho-a. By an accident I learned that it was not a recent instrument incidental to the place and circumstances. While on an excursion after fossils, I noticed on the side of a butte some weathered human bones, which had fallen from a grave above. With them I found some perforated tusks of the elk and one of the stone teshoa. As the grave was an old one, which had become exposed by the wearing away of the edge of the butte, it made it probable that the teshoa did not belong alone to the present generation.

The tusks of the elk are used by the Shoshones as ornamental trophies. They form another evidence of the early relationship of man, as I observe in a recent number of the *American Journal of Science*, that similar ornaments were found together with flint knives, in association with a human skeleton, in a cavern of Broussé-roussé, in Italy.

Remarks on the Action of Wind and Sand on Rocks.—Prof. LEIDY then directed attention to some specimens of quartzite and jasper, which he observed illustrated the eroding and polishing effect of the conjoint action of wind and sand. They were collected by him from one of the buttes of Wyoming. In some situations the stones, firmly imbedded in the hard clay of the buttes, and exposed to an almost incessant action of winds and sand, are all much worn and highly polished. He remarked that many of the sandstone cliffs and other rocks of the West, which were supposed to owe their eroded, cavernous, and often fantastic appearance to the action of water, he thought was largely due to the conjoined action of winds and sands.

The death of Prof. John Frazer was announced.

OCTOBER 22.

Mr. VAUX, Vice-President, in the chair.

Twenty-two members were present.

The death of Constant Guillou was announced.